WHAT IS CLAIMED IS:

1. A process for producing 13-hydroxy-9-octadecenoic acid, which comprises the steps of:

(i) causing cells or a culture of a microorganism having the activity to convert linoleic acid to 13-hydroxy-9-octadecenoic acid and belonging to the genus Pediococcus or Bifidobacterium, or a treated matter thereof, to act on linoleic acid or a composition containing linoleic acid to form 13-hydroxy-9-octadecenoic acid; and

(ii) recovering the formed 13-hydroxy-9-octadecenoic acid.

2. The process according to claim 1, wherein the microorganism in step (i) is Pediococcus pentosaceus or Bifidobacterium bifidum.

3. The process according to claim 1, wherein the microorganism in step (i) is Pediococcus pentosaceus IFO3891 or Bifidobacterium bifidum JCM7002.

4. A process for producing 13-hydroxy-9, 15-octadecadienoic acid, which comprises the steps of:

(i) causing cells or a culture of a microorganism having the activity to convert α-linolenic acid to 13-hydroxy-9, 15-octadecadienoic acid and belonging to the genus Pediococcus or Bifidobacterium, or a treated matter thereof, to act on α-linolenic acid or a composition containing

α-linolenic acid to form 13-hydroxy-9, 15-octadecadienoic acid; and

(ii) recovering the formed 13-hydroxy-9, 15-octadecadienoic acid.

5. The process according to claim 4, wherein the microorganism in step (i) is Pediococcus pentosaceus or Bifidobacterium bifidum.

6. The process according to claim 4, wherein the microorganism in step (i) is Pediococcus pentosaceus IFO3891 or Bifidobacterium bifidum JCM7002.

7. A process for producing 13-hydroxy-6, 9-octadecadienoic acid, which comprises the steps of:

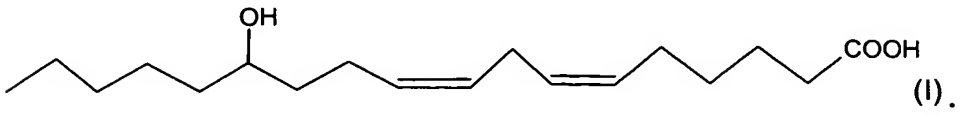
(i) causing cells or a culture of a microorganism having the activity to convert γ-linolenic acid to 13-hydroxy-6, 9-octadecadienoic acid and belonging to the genus Pediococcus or Bifidobacterium, or a treated matter thereof, to act on γ-linolenic acid or a composition containing γ-linolenic acid to form 13-hydroxy-6, 9-octadecadienoic acid; and

(ii) recovering the formed 13-hydroxy-6, 9-octadecadienoic acid.

8. The process according to claim 7, wherein the microorganism in step (i) is Pediococcus pentosaceus or Bifidobacterium bifidum.

9. The process according to claim 7, wherein the microorganism in step (i) is Pediococcus pentosaceus IFO3891 or Bifidobacterium bifidum JCM7002.

10. 13-hydroxy-6, 9-octadecadienoic acid represented by the following formula (I):



(I).